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ABSTRACT

Developments in direct broadcasting satellite (DBS) regulation--which have evolved in the United Nations (UN), the International Telecommunications Union (ITU), and Unesco--have had an impact on the current international regulatory environment for DBS, especially those regulations evolving in the ITU, which has established a foundation of technical norms upon which further regulation can be created. Two international problems have blocked the widespread establishment of DBS systems: that of international broadcasting via DBS and that of access to the "geosynchronous orbits" (GSO). While the UN became bogged down in the free flow of information vs. the national sovereignty question and Unesco began to concentrate on the New World Information Order issue, the ITU moved ahead with the formulation of DBS regulation based on technical parameters. The history of efforts to formulate international DBS regulations suggests several implications for the regulatory environment, specifically that (1) future success will depend on the willingness of nations to cooperate and compromise; (2) Western countries are likely to stay in ITU; (3) as long as strictly technical problems and issues exist, the ITU will continue to be the forum in which further DBS regulations are created; and (4) technological advances and economic developments will complicate the creation of further DBS regulations. A list of 66 references is appended. (JD)

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International Regulation of Direct Broadcast Satellites: The Roles of UNESCO, ITU and the UN

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ABSTRACT

Among the UN, ITU and UNESCO the most effective has been the ITU, which has established a foundation of technical norms upon which further regulation can be created. The history of efforts to formulate international DBS regulations in these organizations suggests that 1) future success will depend on the willingness of nations to cooperate and compromise; 2) Western countries are like to stay in the ITU; 3) as long as strictly technical problems and issues exist, the ITU will continue to be the forum in which further DBS regulations are created; and 4) technological advances and economic developments will complicate the creation of futher DBS regulations.

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International Regulation of Direct Broadcast Satellites
The Roles of UNESCO, ITU and the UN

Forty years ago Arthur Clarke envisioned artificial satellites traveling at 21,300 miles directly above the earth's equator. At this altitude the velocity of the satellite matches the speed of the earth's rotation. Thus, the satellite appears to hover perpetually over one point on earth. Satellites in such "geosynchronous orbits" (GSOs) are able to provide efficient and continuous communication services to large geographical areas, perhaps encompassing several countries. Television and radio signals could be received directly from the satellite by many individual and/or community antennas at once. This is the basic idea behind direct broadcast satellite (DBS) systems.

Although the technology required to establish DBS systems is at hand, they are not yet a common phenomenon. Two problems, at an international level, have contributed to the lack of widespread establishment of DBS systems.

1) The problem of international broadcasting via DBS.
The geographic area covered by the signal from a satellite is called its "footprint." When a DBS "footprint" covers only the country that placed the satellite in orbit, only domestic users receive the transmissions. Inernational broadcasting occurs when the "footprint" of one country's DBS covers (intentionally or unintentionally) the territory of other countries. All countries have recognized the international potential of DBS, but not all have accepted its potential to threaten national sovereignty, undermine indigenous cultures and ruin national economies. This disagreement has

created an impasse between those who believe in free flow of information and those who believe in a "prior consent" or national sovereignty principle.

2) The problem of access to the GSO.

Establishing a DBS system requires access to a position in the GSO. The GSO is single orbital loop on the plane of the earth's equator. Because satellites must be placed at intervals along the GSO (in order to prevent transmission interference between satellites), only a limited number may be placed in orbit. The GSO, therefore, is a finite resource. In addition, since not all portions of the GSO are useful for DBS systems, there is competition for the prime GSO positions. The problem is that not all countries can compete for the positions on an equal footing. Most developing countries lack the technology and financial resources to place and maintain a satellite and it may be years until they do. Meanwhile, developed countries with the proper technology and financial support are already using the GSO, although generally not for DBS systems. The developing countries worry that by the time they have the capacity to use the GSO, developed countries will have used most or all of the prime GSO positions. Therefore, many developing countries have demanded that some GSO slots be reserved until they are ready to use the slots for DBS and other systems.

In an effort to handle these problems, the international community has tried for more than two decades to create international regulation for establishing and using DBS systems that are acceptable to all countries. These efforts have been undertaken in the context of the United Nations (UN) and two of its agencies, the International Telecommunications Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) (5). Each organization has concentrated on aspects of the DBS issue that fall

into its field of competence. This "division of labor" has implications for the role these organizations assume in creating DBS regulations.

Over the years the proceedings in these organizations have, at times, been characterized by combative political posturing, but at other times by a spirit of cooperation. The purpose of this paper is to review the developments in DBS regulation as they have evolved in the UN, the ITU and UNESCO and to assess the impact of these developments on the current international regulatory environment for DBS.

The Role of UNESCO

Of the three international organizations considered here, UNESCO has been the least active in formulating regulations for DBS. UNESCO's involvement in the issue began in 1964 at the Thirteenth meeting of the General Conference. The member-states authorized the Director-General to convene a meeting of experts in 1965 to discuss the potential uses of space communications and to cooperate with other international organizations in matters of space communications (61). The meeting participants produced a final report containing a dozen pages dealing with various aspects of the DBS issue (10, p.50).

Three years later, UNESCO sponsored a "Meeting of Experts on the Use of Space Communication for Broadcasting" (UNESCO House, Paris, January 24-26, 1968). During this meeting the subject of DBS regulation was discussed and the experts noted the "there is no regulation concerning the use of frequencies for direct broadcast satellites" and that a regulatory scheme for allocating such frequencies would soon be needed (44, p.7).

The next occasion at which UNESCO expressed an opinion on the DBS issue was at its General Conference in 1972. At this conference, UNESCO adopted "The Declaration of Guiding Principles on the Use of Satellite Broadcasting

for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange." This was the first UNESCO document that suggested specific regulations for DBS. Article IX (1) of the Declaration states:

> In order to further the objectives ... it is necessary that States ... reach or promote prior agreements concerning direct satellite broadcasting to the population of countries other than the country of origin of the transmission (62, p.69).

Elsewhere, the Declaration authorizes content regulation. For example, the Declaration states in Article VI (2):

> Each country has a right to decide the content of the educational programmes broadcast by satellites to its people ... (62, p.68).

And in Article IX (2):

> With respect to commercial advertising, its transmission [via DBS] shall be subject to specific agreements between the originating and receiving countries (62, p.69).

The importance of this document for the future of DBS regulation was diminished, however, because the Declaration did not receive even a simple majority from the UNESCO membership and therefore did not represent a consensus of the international community (19, p.447). The reason for the lack of support was that advocates of the free flow of information doctrine perceived the Declaration as too heavily weighted towards the national sovereignty doctrine.

It is important to note at this point that UNESCO activity in DBS regulation has focused mainly on "software" or content-related issues. UNESCO, unlike the ITU, has largely avoided dealing with "hardware" or technology-related problems.

The Role of the ITU

ITU involvement in satellite communication can be traced to the 1959 World Administrative Radio Conference (WARC). At this conference, 13 narrow frequency bands were reserved for experimental use of satellite broadcast (9, p.75) Then, in 1963, at its Extraordinary Administrative Radio Conference for Space, the ITU

authorized simultaneous use of certain frequencies in a common area by two different types of services: satellite and terrestrial communications (27, p.6). This was done because of the increasing demand from nations for optimal communication satellite frequencies in the 1 to 10 gigahertz (GHz) range -- many of which were already allocated among a variety of terrestrial microwave services (7, p.5). A great deal of coordination was needed for this "piggybacking" method and procedures were quickly established in consultation with the International Frequency Registration Board (IFRB), the ITU component charged with keeping the Master Register of international radio frequency usage, for managing these frequency bands. Building on this foundation of coordinating international satellite communication service, and responding to pressure from a growing Third World membership that favored international regulation of satellite communication and the GSO, the ITU steadily increased its activity in the area of DBS (27, p.6).

In 1971 the ITU held a WARC for Space Telecommunication (WARC-ST). At this conference, a new type of satellite service was defined. The new service, Broadcast-Satellite Service (BSS), was defined as "radiocommunication service in which signals ... are intended for direct reception by the general public" (7, p.1573). BSS, therefore, is simply the ITU nomenclature for direct broadcast satellites.

BSS was distinguished from Fixed-Satellite Service (FSS), which was defined as "a radio communication service between earth stations at specified fixed points when one or more satellites are used" (7, p.1572). The important distinction from BSS is that FSS involves terrestrial redistribution of signals by earth stations.

The 1971 WARC-ST then adopted several constraints for its member states concerning both FSS and BSS facilities. Among the most important were to provide the IFRB with basic operational data on any planned satellite systems (7, p.1684), and to coordinate with foreign administrations in eliminating transmission

interference (7, p.1685ff). A third constraint adopted at the 1971 meeting was specifically for BSS. It is ITU Radio Regulation 428A, which reads:

> In designing the characteristics of space stations in broadcasting-satellite service, all technical means available shall be used to reduce to the maximum extent practicable, the radiation over the territory of other countries unless an agreement has been previously reached with such countries (7, p.1648).

This regulation, which has taken guidance from Article IX (2) of UNESCO's Guiding Principles on DBS (1972), has been generally interpreted to mean that international coverage by the footprint of one country's satellite of the territory of another country requires the prior agreement of the latter country, and without that agreement, only technically unavoidable spillover is permissible (3, p.240).

The 1971 WARC-ST also allocated (not assigned) radio frequencies for Region 1 (Europe, Africa and the USSR) in the 11.7 to 12.5 GHz range; Region 2 (Americas) in the 11.7 to 12.2 GHz range; and Region 3 (Asia and South Pacific) in the 11.7 to 12.2 GHz range. In all three regions these bands were to be used for BSS. In Region 2, however, the frequency band was to be shared between BSS and FSS. The allocation of frequency bands represented a "truly quantum leap" in that it was the first time that the ITU had pre-planned the use of radio frequencies (27, p.9). Up to this time, the ITU has treated the radio spectrum as res communis (the notion that a resource is common property and subject to exploitation by any party that is capable of doing so) and frequencies were allocated on a first-come, first-served basis.

In 1973 the ITU held a plenipoteniary conference in Malaga-Torremolinos, Spain. The members decided to set a 1977 date for a WARC for the planning of BSS (WARC-BS). The members also amended the ITU convention to reflect the principle of equitable access for all countries to GSO slots (12, p.2530). In addition, the IFRB was given the power to regulate radio frequencies associated with BSS (12, p.2518).

At the 1977 WARC-BS, the conference adopted a plan to a priori assign orbital slots and radio frequencies (in the range allocated at WARC-ST) to each member country in Regions 1 and 3 to use for BSS. The frequency assignments were accomplished by dividing the the frequency bands allocated in 1971 into many frequency channels of more practical bandwidths, associating a group of channels with one oribital position, then assigning to countries specific channels at specific orbital slots (12, p.75). The a priori assignment approach meant that orbital slots and associated frequencies would be given to some countries in advance of their need or capability to use them.

In Region 2, because of the complexity resultin from the sharing condition between FSS and BSS, WARC-BS decided that the planning of the GSO arc and the radio frequencies in the 11.7 to 12.2 GHz range would be discussed at a regional conference in 1983 (8, p.9011, 2).

In 1979 the ITU held a general WARC. At this conference the BSS plans for Regions 1 and 3 were reaffirmed and incorporated into the ITU Radio Regulations, but there were important changes made in the BSS/FSS plan for Region 2 (25, Resolution 504). Originally, the geosynchronous arc over Region 2 was to be segmented between BSS and FSS. It was discovered, however, that this segmentation plan would severely restrict the number of satellites (both BSS and FSS) that could be placed in GSO (26). At the insistence of the Region 2 countries, the WARC devised a new plan to separate BSS and FSS by frequencies rather than by having them on the same frequencies but in different parts of the geosynchronous arc. The new Region 2 plan allowed FSS to operate in the 11.7 to 12.2 GHz range and BSS in the 12.2 to 12.7 GHz range. Under this plan, the entire geosynchronous arc over Region 2 could be used either by BSS or FSS. The new arrangement increased the number of available BSS positions from 6 (under the 1977 plan) to 22 (13). The task of assigning specific

orbital slots and associated frequencies was undertaken at the Region 2 conference in 1983.

A second significant action at the WARC was the incorporation of Resolution BP into the Final Acts of the conference. The resolution was a logical follow-up to the 1971 WARC-ST where the ITU pre-planned the use of the radio frequencies for space communiction, the 1973 Plenipotentiary conference where the ITU Convention was amended to reflect the principle of equal access to GSO slots and the 1977 WARC-BS where the ITU a priori assigned GSO slots to member-states for BSS and FSS. Resolution BP called for a special WARC, to be convened no later than 1984, to "guarantee in practice for all countries access to the geosynchronous-satellite orbit and the frequency bands allocated to space service." Resolution BP also called for a conference to be held no later than 1986 to implement the decisions of the earlier conference (27).

Resolution BP is the culmination of pressure from the Third World countries to force the ITU to assure that telecommunication resources are equitably distributed among all nations. For Third World countries the traditional first-come, first served policy of the ITU has not served them well. The policy as applied to terrestrial radio telecommunications has resulted in the developed countries controlling 90 percent of the usable radio spectrum (16, p.52). Resolution BP, therefore, is a result of efforts of Third World countries to prevent a similar situation in the use of GSO slots and associated radio frequencies.

The ITU Administrative Council, a 36-member body that meets each spring in Geneva, gathered in 1981 to consider the implementation of Resolution BP. The Council established a schedule of meetings that included two sessions of the World Administrative Conference on the Use of Geostationary Satellite Orbits and Planning the Space Services Utilizing It (Space WARC), to be held in 1985 and 1988 rather than 1984 and 1986, as foreseen in Resolution BP (6).

At the 1983 Regional Administrative Radio Conference (RARC) for Region 2, convened to assign GSO slots over the region along with associated radio frequencies, three main problems faced the participants. The first was which orbital slots to assign each Region 2 country. The second was how many channels would be allowed for each orbital slot. And the third was the power standard to be used by satellites in the Region 2 geosynchronous arc.

All countries at the conference made concessions in order to come up with an acceptable and workable plan for regulating BSS and FSS in Region 2 and, therefore, no country came away with everything it wanted. This cooperative spirit was most evident in the assignments of orbital slots. Cuba made a significant concession when it accepted a computer-aided model that placed its orbital slot in a position it did not desire (66). Brazil gave up completely one orbital slot in order to accommodate the needs of other countries (4). Table 1 (see page 10) shows the final tally of the number of orbital slots assigned to some of the major Region 2 participants.

TABLE 1

Final Orbital Slot Assignments for Major Participants at Region 2 WARC

Country	Number of slots
U.S.	8
Canada	6
Brazil	5
Mexico	4
Argentina	2
Andean Consortium*	1
Caribbean**	1
Cuba	1

* The consortium consists of Bolivia, Colombia, Ecuador, Peru and Venezuela.

** To be shared with the U.S.

Sources: 14,64

Regarding the second problem, countries agreed to limit the number of channels per orbital slot to 32. The U.S. wanted 36 channels per slot originally, but backed down when computer-aided evaluation indicated that there would be too much interference between channels if 36 were allowed for each orbital slot (15).

The power of a satellite transmission is measured by the power flux density (bdw) per square meter. This refers to the power of the signal (in watts) at the point of reception and is expressed in logarithmic units with larger absolute values corresponding to lower power levels (15). The dbw standard set at RARC was -107dbw per square meter. The U.S. wanted a dbw standard of -105 per square meter (a

difference of about 60 percent more power than the final RARC standard). But Canada and Brazil protested that the higher power standard would result in intolerable levels of interference with their own channels (36). After the proposal to set the power standard at -105 dbw per square meter was defeated, the U.S. filed a reservation, a declaration that it may not abide by the conference decision on satellite power (4).

Despite the U.S. reservation on the satellite power issue, the RARC was a successful conference on DBS regulation. In a short period of time (five weeks) the conference accomplished what it set out to do without politicizing the proceedings and came up with a plan acceptable to all Region 2 countries. The 1983 Region 2 RARC, along with the 1971 WARC-ST and the 1977 WARC-BS, represents the ITU's relatively quick strides in creating an international regulatory framework for DBS technology.

In 1984, the ITU held a meeting especially for planning the Space WARC. The Conference Preparatory Meeting (CPM), a specialized meeting of ITU's International Radio Consultative Committee (CCIR) study groups, was held in Geneva to prepare the technical bases for ORB-85, the first meeting of Space WARC. The delegates decided that ORB-85 would consider assigning GSO slots and radio frequencies for all space services except BSS. This decision was taken because the 1977 WARC-BS plan for Regions 1 and 3 was already incorporated into the ITU Radio Regualtions in 1979 and the 1983 RARC had already mapped out the use of the GSO arc for Region 2. In terms of DBS-related issues, therefore, the main task for ORB-85 was to decide whether to incorporate into the ITU Radio Regulations the BSS plans for Region 2 (29, 30, 21, 37).

At ORB-85, Region 2 countries worked hard to persuade the conference to incorporate the Region 2 BSS plan into the Radio Regulations. France was a principle opponent because of its concern that the plan may have an adverse impact

on two French satellites serving its possessions in the Caribbean (64). After intense talks among Region 2 countries, France, Great Britain and the USSR, the plan was finally approved.

With the incorporation of the Region 2 BBS plan into the ITU Radio Regulations, a framework for the international regulation of DBS is now in place. The framework provides technological solutions that, theoretically, will overcome two problems that have fueled the two-decade-old debate over DBS regulation. The problem concerning reception of unwanted signals from DBS is solved by assigning GSO slots and associated frequencies in a manner that reduces interference among satellites transmissions. And the Third World demand for guaranteed access to orbital slots is accommodated by reserving specific orbital slots and frequencies for use by countries that presently do not have the capability to initiate DBS services.

ITU activity in the area of DBS, it is apparent, has focused on technological standards and regulations. Even Resolution 428A, which essentially deals with unwanted content from foreign broadcast satellites, suggests that technical solutions be used to prevent spillover problems. Neither Resolution 428A nor any other ITU resolution suggests regulations to control the content of international broadcasting via DBS.

The Role of the UN

The UN has been by far the most active international organization trying to formulate regulations for the use of DBS. The UN interst in DBS regulation can be traced back to 1963 when a Brazilian delegate to the Committee on the Peaceful Uses of Outer Space (COPUOS) requested a ban on the use of DBS. The following year, a working paper prepared by the UN Secretariat for the Scientific and Technical Subcommittee (STC) of COPUOS suggested that a panel of experts from diverse fields conduct studies to determine the political, social, economic and legal implications of international DBS (30, p.27).

In 1966 the Legal Subcommittee (LSC) of the COPUOS met to discuss the draft "Treaty on principles governing the activities of States in the exploration of the moon and other celestial bodies." During the sessions, many delegates spoke about the regulation of DBS. The Soviet delegate said that since it soon would be possible for conventional television to receive broadcasts direct from satellites, measures were urgently needed to prevent the misuse of DBS technology (41, p.3). A delegate from the United Arab Republic (UAR) proposed that the treaty being discussed in the LSC include provisions to regulate program content aspects of DBS (30, p.27). The UAR proposal was supported by the USSR, Brazil, India and France among others, but the U.S. and U.K. stressed the need for further study and suggested that regulation of content was in conflict with communication principles of many countries and suggested that DBS regulation was unnecessary (32, p.28). Even at this early stage, the sides were being drawn between those favoring regulation and those favoring a nonrestrictive model. As for the UAR proposal, despite heavy support, delegates realized that more research was necessary before any such article could be included in a treaty on outer space.

The question of DBS regulation came up in a 1967 General Assembly Resolution that specifically requested COPUOS to "study the technical feasibility of communication by direct broadcast satellites and current foreseeable developments in this field as well as the implications of such developments (58, p.11). The LSC of COPUOS followed with a similar recommendation in June 1968 (3, p.36) and in the October meeting of COPUOS, Canada and Sweden jointly proposed the formation of a Working Group on Direct Satellite Broadcasting (WGDBS). COPUOS acted quickly and set up the WGDBS "to study and to report ... on the technical feasibility of communication by direct broadcast satellites ... as well as social, cultural, legal and other questions" (45, p.5).

The WGDBS held five meetings between 1969 and 1974. The first meeting in February 1969 was attended mainly by telecommunication experts. They discussed the technical feasibility of DBS and current and future developments in the field but, significantly, no steps toward DBS regulation based on purely technical discussions were considered (10, p.3).

The second meeting of the WGDBS was held in July and August 1969. At this meeting, a Sweden-Canada working paper addressed the question of applicability of existing international law to DBS and concluded that sovereignty right of states, state responsibility, international cooperation and mutuality of interests should be major principles of international law regulating DBS (40). A second working paper, submitted by the French delegation, expressed concern about the potential hazards of DBS technology. The paper stated that because of the sophisticated technology involved, "economic and technological inequalities of members of the international community will be confirmed anew" (39, p.2). The stated implications of these inequalities were that internal affairs, national cultures and social systems could be undermined by the suggestive power of television (39, p.3). The French working paper went on to suggest equitable access to satellite transmitters, establishment of a code of conduct for DBS system operators and acquiring prior consent of States receiving transmissions as principles which should guide the formulation of DBS regulations (39, p.6)

The WGDBS' third meeting was held in May 1970. A Sweden-Canada joint working paper echoed the suggestions of the French working paper of 1969 and added that regional DBS systems should be established in order to encourage participation by more countries and individuals (32, p.41). The French also submitted a working paper that suggested two more principles for the regulation of DBS: 1) every state should be free to make use of satellite broadcasting, and 2) every state whose territory was covered by a satellite should be able to use the satellite transmitter

for its own benefit under equitable and reasonable terms (55, p.29). The Soviet delegation submitted a working paper that espoused similar principles (55, p.27). A consistent pattern of views on DBS regulation was beginning to emerge. The U.S. and some allies supported the free flow of information model, while the USSR and France represented the prior consent view, emphasizing national sovereignty. Canada and Sweden argued for a middle ground approach, favoring regional cooperation and initiative. They also argued that the free flow of information and national sovereignty are not incompatible philosophies.

In 1972, the USSR requested the inclusion of the following item on the agenda of the 27th General Assembly: "Preparation of international convention on principles governing the use by States of artificial satellites for direct television broadcasting" (47). Among the governing principles suggested by the Soviet proposal were equal access to DBS technology, prior consent of States receiving DBS transmissions, a list of illegal content, freedom to counteract illegal broadcasts and state responsibility for all broadcast activities by organizations within its territories (47, p.5). The Soviet proposal generated much debate and discussion between delegates favoring national sovereignty of states and those favoring free flow of information. The debate finally led to Resolution 2916, which requested COPUOS to elaborate principles governing the use of DBS with a view to concluding an international agreement (46).

When the WGDBS reconvened in June 1973 for its fourth meeting, Canada and Sweden submitted a joint proposal of principles governing DBS (56). The document differed in important ways from the Soviet draft convention of 1972. The Canada-Sweden proposal agreed with the principles of prior consent and equitable access, but felt that a distinction should be made between intentional broadcasts to foreign countries and unavoidable spillover (56, p.3), an idea that was also expressed in ITU Radio Regulation 428A. Also in the Canada-Sweden proposal, in Article II, a

topic that was to become the key issue in future discussion on DBS regulation in the UN was reintroduced. Article II read:

> [Direct television] broadcasting shall be conducted on the basis of respect for the principles of the sovereignty of States, non-intervention and equality in the interests of promoting the free flow of information (56, p.2).

Canada and Sweden's middle ground position, that national sovereignty and free flow of information are not mutually exclusive principles, is clearly embodied in Article II.

At the fifth meeting of the WGDBS in March 1974, the U.S. and the USSR submitted competing sets of draft principles (57). The Soviet draft was basically a toned-down version of the 1972 draft convention submitted to the General Assembly. The 1974 version remained restrictive and heavily in favor of the primacy of national sovereignty for regulating DBS. The U.S. draft represented a change of its position on the DBS issue. In previous sessions, the U.S. had rejected the idea of governing principles for DBS altogether. But now, the U.S. delegation presented eleven principles that placed a heavy emphasis on the free flow of information model. The importance of the fifth WGDBS meeting was that "the issue had been joined" (3, p.415). The U.S. and USSR explicitly took opposite side of the free flow of information vs. national sovereignty issue and Canada and Sweden led those countries that favored a middle ground.

In 1975 the LSC developed, based on the U.S., Soviet and Canada-Sweden WGDBS proposals, a set of 14 draft principles governing the use of DBS (48). These principles were pared down to nine by the members of the LSC at its 1976 meeting. Decisions on principles dealing with prior consent, program content limitations and inadmissible broadcasts were put off for further discussion because a consensus could not be reached on these points (3, p.425). Like most drafts on DBS regulation thus far proposed, the nine LSC-approved draft principles promoted mutual understanding, international peace and international security as the goal of DBS

activity (49). The preambular paragraphs also discussed other point of agreement such as providing increased access to DBS technology to poorer nations (49). However, the nine principles also avoided addressing what had been the main topic of contention during previous years — the free flow of information vs. national sovereignty issue. A decision about adopting the nine principles was postponed to the following year.

At the 1977 session of the LSC, the U.K. submitted a working paper summarizing the 1977 WARC-BS. The U.S., U.K. and West Germany questioned the need for a set of guiding principles on DBS now that the ITU had just completed a comprehensive plan for DBS transmissions based agreements between receiving and transmitting states (3, p.425). The U.K. removed its objections, however, when it persuaded the LSC members to consider the principle regarding prior consent (one that was put off for further discussion in 1975) with the word agreement substituted for the word consent, thus bringing it in line with the 1977 ITU plan for DBS. The U.K.-proposed principle read:

> A direct television broadcasting service by means of artificial earth satellites specifically directed at a foreign State, which shall be established only when it is not inconsistent with the provisions of the relevant instruments of the International Telecommunications Union, shall be based on appropriate agreements and/or arrangements between broadcasting and receiving States, or the broadcasting entities duly authorized by respective States, in order to facilitate the freer and wider dissemination of information of all kinds and to encourage cooperation in the field of information and the exchange of information with other countries (50, p.3).

The U.K. delegation hoped that the flexibility of the phrasing and the references to "freer and wider dissemination of information" and "appropriate agreements and/or arrangements" would lead to a consensus on the principle, resulting in its incorporation into the existing draft principles, bringing the total to ten. However, in the 1978 LSC meeting, the U.S. felt, along with some other delegations,

that the new principle was neither needed or appropriate and should not be included in any set of guiding principles on DBS (51).

In 1979, Canada and Sweden submitted a "clean text" (one without footnotes or square brackets indicating points of contention) of the draft principles, including the 1977 U.K.-proposed prior agreements principle, to the the LSC (52). The "clean text" had added to the U.K. principle one paragraph that directed States proposing to establish DBS service directed toward other States to enter into immediate consultations with the receiving State before beginning such service and another paragraph that stated that no consultation was needed if the transmission was merely technically unavoidable spillover (43). The USSR was ready to accept the "clean text" but the U.S., West Germany, Belgium, the Netherlands and Italy were not. Diluting the key principle of consultation and agreements to the extent desired by those delegations opposing it would have meant alienating the USSR and most developing countries. Keeping the "clean text" intact, however, meant that once again, a consensus on the draft principles would not be reached in 1979.

The LSC met again in March 1980. At this meeting the LSC re-established the WGDBS in order to work further on the draft principles with square brackets reinserted. The WGDBS presented the LSC with a report of its actions but no text of draft principles (53).

In 1981, the WGDBS was again re-established in accordance with General Assemble Resolution 35/14, which recommended that the LSC, at its present session, continue its efforts to elaborate governing principles (54). The WGDBS decided to work from the text of principles from their 1980 meeting, a draft that the WGDBS had not even considered submitting to the LSC in 1980. The WGDBS paid particular attention to the principles in square brackets regarding State responsibility, duty and right to consult, peaceful settlement of dispute, consultation and agreements between States, program content and unlawful and inadmissible broadcasts. The WGDBS also postponed

work on the preamble and those principles not in square brackets (54, p.2). Informal discussions were held in an effort to remove remaining points of differences, but the WGDBS adjourned without reaching a consensus on draft principles for DBS (54, p.2).

The UN General Assembly directed COPUOS to meet again in 1982 to complete the elaboration of governing principles for DBS (59, p.82). In February 1982 COPUOS met in Geneva to carry out the directive. The free flow of information vs. national sovereignty debate was still the major obstacle to adoption by consensus of a set of governing principles for DBS. A Swedish compromise proposal was originally rejected because of objections raised by some Latin American countries (35), but was reintroduced after revision. When it became apparent that no consensus would be reached even on the revised proposal, the majority decided to resolve the matter by eschewing the traditional consensus decision-making method and replacing it with a simple vote. The proposal was then adopted by COPUOS by a vote of 88 to 15 with 11 abstentions. The draft principles were then sent to the General Assembly for consideration. On December 10, 1982, the General Assembly adopted the "Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting" (60). The document espouses both free flow of information and national sovereignty, and is consistent with ITU Radio Regulation 428A. Principles in the document require that content of DBS transmissions respect the "political and cultural integrity of States," and adhere to the "principle of non-intervention." Another principle declares that "States should bear international responsibility for activities in the field of international broadcasting by satellites carried out by them or under their jurisdiction" (60, p.98).

After nearly 20 years of discussions and debates, the UN finally adopted a set of principles governing the use of DBS. But it could only do so after COPUOS discarded its traditional consensual decision-making method. Thus the effectiveness

and impact of the Principles were diminished. Like UNESCO, COPUOS concentrated on potential problems related to the content of DBS transmissions. Technological issues were, on the whole, avoided.

Conclusions

The greatest point of contention during the UNESCO and COPUOS activities on DBS regulation was the free flow of information vs. national sovereignty issue. Most Western countries insisted that the free flow of information must be the guiding concept in formulating DBS regulations. The USSR and France led a group of nations that advocated the supremacy of the national sovereignty as the basis for DBS regulations. A third group, led by Sweden and Canada, held the middle ground, arguing that the concepts were not incompatible. Of these three groups of nations, those advancing the free flow of information were the most rigid in their stance. The USSR was willing to accept a "clean text" presented in COPUOS in 1979 but the U.S. was not. The unwillingness of the U.S. to compromise is one of the main reasons the UN took nearly 20 years to adopt a set of principles on DBS — and this was accomplished only after COPUOS disregarded its traditional consensual decision-making method.

UNESCO was the least active of the three international organizations in creating DBS regulation. Initially, the organization appeared very interested. It organized meetings of experts and was involved in the early work of the WGDBS. But after its 1972 Declaration on Satellite Broadcasting, UNESCO's activity in the DBS area ceased. One reason for this was that after 1972, UNESCO was occupied with the Third World demand for a New World Information Order.

While the UN became bogged in the free flow of information vs. national sovereignty question and UNESCO began to concentrate on the New World Information Order issue, the ITU moved ahead with the formulation of DBS regulation based on technical parameters. Observers of the COPUOS attempts to elaborate principles for

DBS were astonished when the 1977 WARC-BS approved a detailed plan for the regulation of DBS only six years after it was introduced in the 1971 WARC-ST (3, p.421). One reason the ITU has been able to move so quickly in developing DBS regulation is that the organization is less politicized that either COPUOS or UNESCO. The delegations to the ITU are mainly concerned with technical matters and technical solutions to problems. Of course, this is not to imply that the ITU is immune to political maneuvering. At its plenipotentiary conference in 1982, the ITU membership, led by Arab nations, came within four votes of expelling Israel from the organization (24). And at the Space WARC "obstructionist" tactics by the Algerians and a Colombian claim of sovereignty over the GSO arc above its airspace threatened to undermine an otherwise successful conference (64, see also 6, p.272). In general, however, ITU meetings are relatively free of politicization.

The history of efforts to formulate international DBS regulations suggests several implications for the regulatory environment. One implication is that future success in the area of international DBS regulation will depend to a great extent upon the willingness of nations to cooperate and compromise. This observation in itself is not earthshaking, but what is important is that in recent international meetings, formerly adversarial member-states have recognized the legitimacy of the needs and claims of other member-states. This was the case at the ITU's 1983 RARC during which the U.S. and Cuba, among other countries, gave up some of their goals to facilitate the creation of a DBS plan for Region 2 countries. But when countries will not cooperate and compromise, developing DBS regulations is difficult and time consuming. This was the case during the COPUOS attempts to formulate governing principles for DBS. Unwillingness of some Western countries to compromise on the free flow of information concept was one of the reasons the UN used 20 years to formulate 10 non-binding principles for DBS regulation.

A second implication is that the U.S. and its Western allies are likely to remain in the ITU. Despite the recent withdrawals from UNESCO by the U.S. and the U.K. (31,11,22), and what some observers feel is an effort to reduce the influence of international organizations (20, 23), a pullout from the ITU by Western countries would be surprising for at least two reasons. First, there are no real alternatives to the international standard-setting and coordinating services provided by the ITU. While it may be possible to carry out some of the activities of UNESCO, and for that matter the ITU, on the basis of various bilateral or multilateral agreements, the smooth functioning of a global telecommunication network requires agreement on and adherence to regulations by all countries (63). Second, because Western countries are the leaders in research and development in DBS and other modern communications technology, they will want to maintain their current active and influential role in the formulation and implementation of international regulations for its use (see 17, 18, 20, 34).

A third implication is that until the technical problems and issues are ironed out, the ITU will continue to be the forum in which further DBS regulations are developed. Although ORB-85 established orbital and frequency norms for DBS, some problems, such as High Definition Television and sound broadcasting channels on DBS, remain unsolved (65). As long as there are technical or "hardware" problems associated with DBS, the ITU will remain active and in the forefront of efforts to regulate DBS. However, once international DBS systems become commonplace, content-related problems such as copyright and cultural infringement, as well as political problems such as sovereignty and privacy will arise. COPUOS and UNESCO, since these agencies have traditionally dealt with "software" issues related to DBS, are then likely to become active again in DBS regulation.

Finally, even though the regulatory framework for international DBS is now in place, efforts to establish further regulations will become more complicated than

ever because of technological advances and economic developments related to DBS. Research is progressing on techniques such as use of untapped radio frequencies, beam shaping and multi-purpose space platforms that may allow denser spacing of satellites without increasing interference and the possibility of receiving unwanted broadcast signals (1, 28). If and when these methods are used, revisions of current technical standards for DBS as developed by the ITU will become necessary. New economic issues will spring from the ITU decision to reserve GSO slots for countries that cannot currently use them. In essence, this regulation introduces the concept of property rights and, concurrently, related problems such as leasing and renting, liability, and accepted business practices to the GSO. Inevitably, new regulations to deal with these issues will become necessary also. Unfortunately, technological advances and economic developments will probably outpace changes in the current regulatory framework, and complicate revision efforts further.

In the summer of 1988, the second meeting of Space WARC (ORB-88) will convene to implement the decisions taken at ORB-85. Despite ideological differnces and technological preferences among nations, there has been a generally cooperative spirit at recent ITU meetings. Unless new technical issues have arisen by then, implementing the DBS-related decisions of ORB-85 should be a straight-forward task, marked by a cooperative spirit.

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